Space Weather Forecast

Issued on Wednesday, 23 November 2022 at 01:31 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Slight Chance of R1/R2 radio blackouts throughout. Slight chance of Minor Geomagnetic Storm (G1) intervals by the end of the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low in the past 24 hours, with the largest X-ray flare of the period a common-class flare at 22/0727 UTC. This flare emanated from a relatively new and developing sunspot region. The other two regions on the disk appear stable
Fairly weak CME emanating from the common-class flare at 22/0727 UTC is currently forecast to give the potential for minor impacts with an arrival time at Earth perhaps at the end of the current forecast period. We await further imagery around the potential for a further CME associated with the common-class flare from 22/1910 UTC.

Solar Wind / Geomagnetic Activity: The solar wind eased to background levels. The number of particles was average and their associated magnetic field were weak. The north-south component of the field was variable and also weak. This resulted in Quiet geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were detected.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain low, with a slight chance of isolated moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: There are two CMEs (coronal mass ejections) currently included in the forecast. One that may glance Earth early day 1 (23rd), this is the large 'filament lift-off' (arc of plasma leaving the Sun) from 19 November, and a second from the Common-class flare at 22/0727 UTC into day 4 (26th) though this low confidence.

A slow solar wind regime expected to continue through day 1 (23rd) and into day 2 (24th), given no transitory CME effects. Coronal hole potentially becoming geo-effective later on day 2 (24th) and into day 3 (25th), with an increase to Slight Elevated winds is possible. Confidence then lowers through day four, with another coronal hole currently expected to become geo-effective later in the day. Elevated wind speeds possible with an increased risk of Minor Storm (G1/Kp5) intervals.
The resulting forecast is for generally Quite to Unsettled conditions days 1 to 3 (23rd-25th), with a slight chance of Active intervals. Into day 4 (26th) an increase to generally Unsettled conditions expected with occasional Active periods and a slight chance of Minor Storm (G1/Kp5) intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are expected given the dearth of significant sunspot regions on the Sun at present.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.